DATA SHEET

BGY1816
UHF amplifier module

Preliminary specification
File under Discrete Semiconductors, SC08b

1996 Feb 05

Philips
Semiconductors

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UHF amplifier module BGY1816

FEATURES

- 26 V nominal supply voltage
- 16 W output power into a load of 50 Ω with an RF drive power of 18 dBm.

APPLICATION

- Base station transmitting equipment operating in the 1805 to 1880 MHz frequency band.

PINNING-SOT365

PIN	DESCRIPTION
1	RF input
2	V_{S1}
3	V_{S2}
4	RF output
flange	ground

DESCRIPTION

The BGY1816 is a three-stage UHF amplifier module in a SOT365 package with a plastic cap. It consists of three NPN silicon planar transistors mounted on a metallized ceramic AlN substrate, together with matching and bias circuitry.

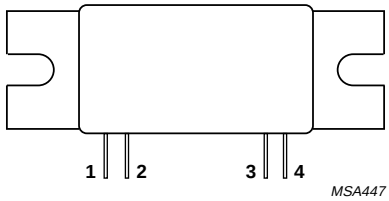


Fig.1 Simplified outline.

QUICK REFERENCE DATA

RF performance at T_{mb} = 25 °C.

MODE OF OPERATION	f (MHz)	V_{S1} (V)	V_{S2} (V)	P_L (W)	G_p (dB)	η (%)	Z_S; Z_L (Ω)
CW	1805 to 1880	5	26	16	≥24	≥33	50

LIMITING VALUES

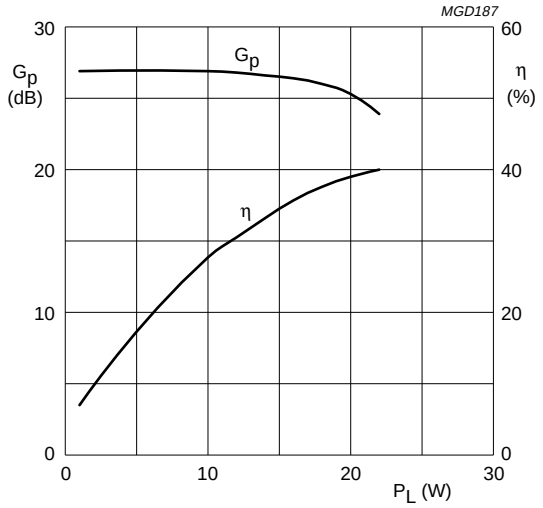
In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{S1}	DC supply voltage		4.5	5.5	V
V_{S2}	DC supply voltage		–	28	V
P_D	input drive power		–	120	mW
P_L	load power	T_{mb} = 25 °C	–	20	W
T_{stg}	storage temperature		–30	+100	°C
T_{mb}	operating mounting base temperature		–10	+90	°C

CHARACTERISTICS

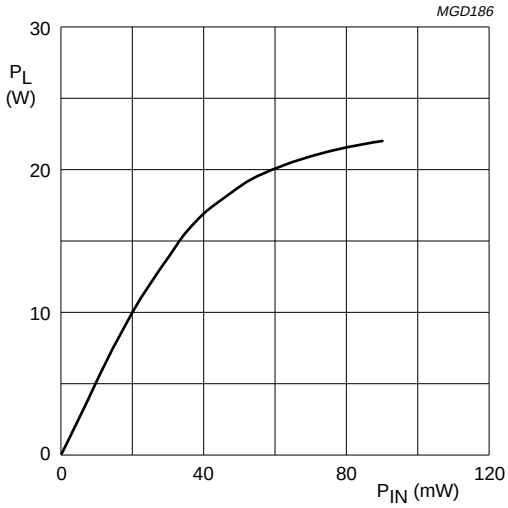
T_{mb} = 25 °C; V_{S1} = 5 V; V_{S2} = 26 V; P_L = 16 W; Z_S = Z_L = 50 Ω unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
f	frequency		1805	–	1880	MHz
I_{S1}	supply current		–	–	50	mA
I_{S2}	supply current	P_D < –60 dBm	–	310	–	mA
P_L	load power		16	–	–	W
G_P	power gain		24	–	28	dB
ΔG_P	gain ripple	peak to peak	–	–	1	dB
η	efficiency		33	–	–	%
H_2	second harmonic		–	–	–35	dBc
H_3	third harmonic		–	–	–45	dBc
$VSWR_{in}$	input VSWR		–	–	1.6 : 1	
	isolation	V_{S1} = 0	–	–	–40	dBm
	stability	VSWR ≤ 2 : 1 through all phases; P_L ≤ 16 W; V_{S2} = 25 to 27 V	–	–	–60	dBc
	reverse intermodulation	$P_{carrier}$ = 16 W; $P_{reverse}$ = –40 dBc; f_i = f_c ±200 kHz	–	–	–53	dBc
F	noise figure	20 MHz offset from carrier	–	–	–97	dBm/Hz
	ruggedness	VSWR ≤ 5 : 1 through all phases	no degradation			



f = 1850 MHz; V_{S1} = 5 V; V_{S2} = 26 V; Z_S = Z_L = 50 W; T_{mb} = 25 °C.

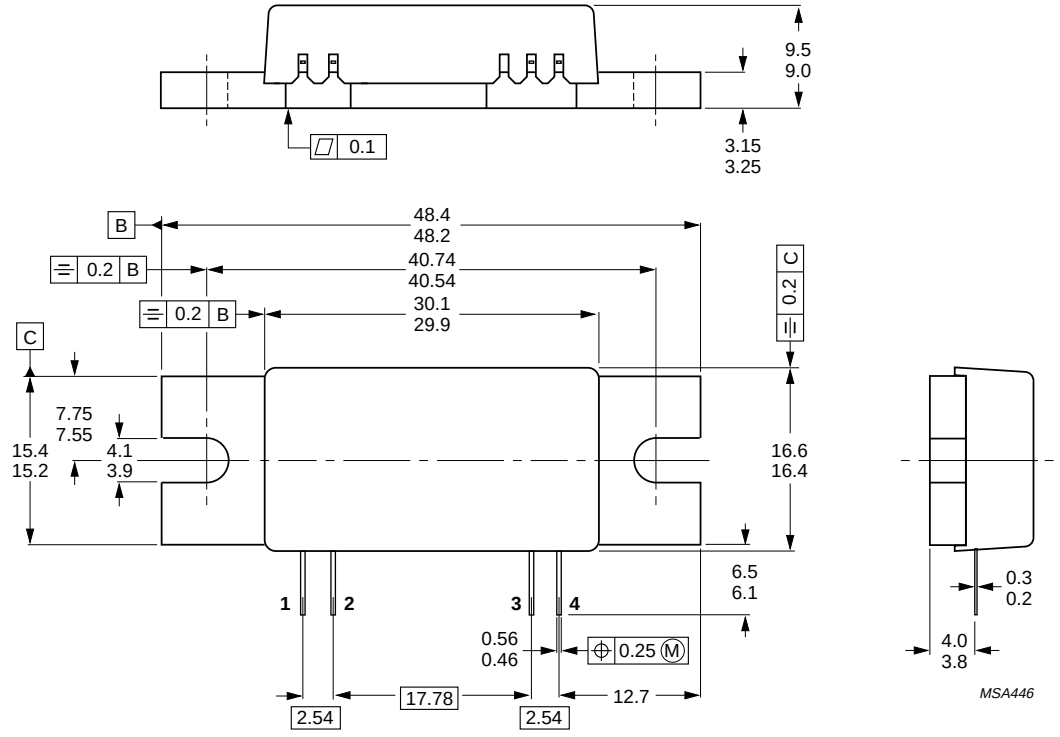
Fig.2 Power gain and efficiency as functions of load power; typical values.



f = 1850 MHz; V_{S1} = 5 V; V_{S2} = 26 V; Z_S = Z_L = 50 W; T_{mb} = 25 °C.

Fig.3 Load power as a function of input power; typical values.

PACKAGE OUTLINE



Dimensions in mm.

Fig.4 SOT365.

DEFINITIONS

Data Sheet Status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

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